and first brought to the writer's attention by Dr. Herbert Gunn of San Francisco. An interview with Dr. Sprague at Sacramento left no doubt in our minds regarding the matter. When we think of the 14,000 cases of this disease among the Westphalian miners a few years ago and the terrible loss of life and time among the Alpine underground workers, some of the possibilities that may confront us are rendered vivid. Another interesting fact in connection with hookworm in California is a case of the infection originating in the State and reported to the writer by Dr. Lucas of Santa Maria, California. The patient is a rancher who has never been out of three counties in this State. The case settles the question as to whether hookworm is endemic or not in California. It is.

The Technique of Examining Stools for Hookworm Eggs.

The writer has had dozens of inquiries recently concerning his method of hookworm diagnosis. The principle involved was first employed independently by the writer and by Dr. Bass of New Orleans, Dr. Bass being the first to publish his results. Our own method is to use two solutions of sodium acetate of specific gravities of 1050 and 1250 respectively. A portion of suspected fæces is mixed with one of these solutions and centrifuged for about ten seconds, the liquid decanted, then the other solution is poured on and mixed gently, the whole again centrifuged, and this process repeated until the eggs are all in one layer, the sand and other heavy ingredients of the fæces remaining below and the light flocculent components lying above the zone in which the eggs remain. With this technique one slide contains as many ova as fifty or a hundred slides by the ordinary method. Dr. Bass uses calcium chloride for his solutions, but the writer has not been able to employ this salt satisfactorily on account of its hygroscopic properties.

LANE MEDICAL LECTURES FOR 1910.

The Directors of Cooper Medical College have the honor to announce that the Lane Medical Lectures for 1910 will be given by Reginald Heber Fitz, M. D., LL. D., Hersey Professor of the Theory and Practice of Medicine, Harvard University. The course will consist of six lectures, entitled, "A Consideration of Some Features of the Lymphatic System," including the discovery of the Lymphatics and the recognition of their importance, Status Lymphaticus and Thymus Hyperplasia, Lymphangiectasis and Lymphangioma, Pseudoleucæmia, Hodgkins' Disease and Lymphosarcoma.

The lectures will be given in Lane Hall, corner Sacramento and Webster streets, San Francisco, at 8:30 p. m. on September 12th, 13th, 15th, 16th, 19th and 20th. These lectures are intended for the medical profession, and all members thereof are respectfully invited to attend.

CASE REPORTS.

By H. C. MOFFITT, M. D.

September 21, 1908, a woman of 28 was brought to the University Hospital. She is a widow with two children, and had been working for twelve hours a day making shirts. For eight or nine years she had noticed discharge from the right ear, but it never bothered her. About September 1st the patient had severe pain in the right ear, and put hot oil in it by advice of a neighbor. An "abscess" broke next day, and the patient had a sudden chill followed by fever. The pain disappeared. Vomiting and diarrhea lasted two days. The patient grew weak, sweated profusely, and had five or six chills. September 16th she grew short of breath, and had pain in the left side of the chest. On entrance she looked septic; there were no pupillary changes or nystagmus. There were numerous petechiae over the trunk, arms and abdomen. There was a patch of bronchopneumonia in the right lower lobe. The spleen was large, the heart dilated. The right mastoid region was swollen and tender, and there was swelling and tenderness along the upper portion of the right sterno-mastoid muscle. A diagnosis of acute mastoiditis, sinus thrombosis, and general sepsis was made in the medical ward, and operation advised. The fundus was at this time normal. A blood count showed 22,400 leukocytes with 85 per cent polynuclears. On September 23rd Dr. McKee operated. The following description is from his notes:

"Usual incision for radical operation. Upon opening cortex, pus under pressure exuded. No large cells. Posterior osseous wall of meatus removed down to facial ridge. Carious ossicles removed, middle ear and mastoid cavity thrown into one. Removing discolored bone opened a large abscess on the sinus filled with foul pus under great pressure. Sinus laid bare for nearly 2 cm. The wall yellowish, and sinus collapsed, but seemed to fill after removing pressure. Sinus incised, and copious bleeding from both directions with probe; no clot discovered."

The next day leukocytes dropped to 8,400 with 77 per cent polynuclears. Decided twitching of the right facial muscles was noted; this persisted subsequently. The patient did well for two days, but then began to be restless and dull. Leukocytes rose to 21,000 with 92 per cent polynuclears. A blood culture during this period was negative. The patellar reflexes were decreased. Both retinae were edematous, the right retina decidedly more than the left. September 28th there was complaint of slight soreness in the back of the neck, but next day this had disappeared, and patient said she felt well. The wound was clean. A small amount of fluid was withdrawn from the right pleura, and found to contain both squamous and small mononuclear cells. The condition became worse from the 29th to October 3rd, and it became apparent that the patient had both meningitis and a cerebral abscess, which was located in the right temporal lobe. Leukocytes varied from 10,800 to 21,600. There was occasional nausea. The patient was unable to concentrate her attention on questions asked her, and she was irritable and restless. The right pupil was slightly larger than the left. There was a distinct neuroretinitis more marked in the right eye. The abdominal reflexes were absent, knee jerks much increased. There was marked spasticity of the lower extremities, and a decided Kernig. On the evening of October 2nd, there was a general convulsion with unconsciousness. The head and eyes were turned

to the left. A spinal puncture on October 3rd gave turbid fluid under pressure with 95% polynuclear cells and streptococci in the stained smear. Cultures by Dr. Lartigau confirmed the presence of streptococci.

On October 3rd Dr. McKee exposed the sinus more freely and opened widely. The jugular vein was ligated by Dr. Russ, and the sinus curetted, and septic clot removed from direction of the bulb. There was a moderate flow of blood from the torcular end.

October 4th the patient was depressed, but did not complain of pain. The neck was not rigid. The right pupil was now smaller than the left. The optic neuritis had increased particularly in the right eye. The lower extremities were rigid. Kernig was more marked on the right, although the left knee and ankle jerks were livelier; Babinski and Oppenheim were absent.

On October 5th the patient's general condition was worse, though the signs had not greatly changed, and 40 cc. of turbid fluid was removed by lumbar puncture, and streptococci demonstrated by smear and culture. Twenty cc. of antistreptococcic serum were injected slowly into the spinal canal before withdrawing the needle. At 5:30 p. m. Dr. McKee operated, carrying his original incision upward. A ¾-inch button was removed, 1½-inch above and ¼ to ½-inch posterior to the center of the meatus. The opening was enlarged downward to the level of the floor of the fossa. The dura bulged distinctly, and puncture with a trocar showed pus under pressure. On dilating with forceps, 1½ to 2 ounces of foul pus of dark color was evacuated. On lifting the brain a small amount of pus with a few bubbles of gas escaped. The incision over the sinus was carried backward, and the sinus was split open. It was filled with bright, non-odorous clot. The bulbar portion was gangrenous. The sinus was packed, and a cigarette drain put in the abscess cavity. A blood culture taken October 5th was negative.

The day following the operation the rigidity of the lower extremities was less marked, but Kernig persisted on the left. On October 7th and 8th the patient was much more rational, and Kernig was less marked. The leukocytes still remained 14,800 with 80% polynuclears.

On October 9th there was headache and nausea and some stupor. Twenty cc. of turbid fluid was removed by lumbar puncture, and 20 cc. of antistreptococcic serum introduced into the canal immediately afterward. Dr. McKee found pus below the site of drainage, near the floor of the fossa. A probe passed well forward toward the apex of the temporal lobe.

Smears from this spinal fluid showed disintegrated leukocytes, and cultures remained sterile.

From this time on the patient steadily improved. A serum rash appeared October 14th, nine days after the first intraspinal injection. The Kernig persisted in both legs until October 15th. The optic neuritis increased for some days after drainage of the abscess, especially in the right eye, as has been noted in other cases. By November 15th it had completely disappeared. The patient remained rather foolish and silly for two or three weeks, but this has disappeared. The leukocytes fell gradually to normal.

Man of 27, single, an iron moulder by occupation, and has worked hard for ten years. His family history is negative. He was never seriously ill, and denies any venereal infection. He has used alcohol and tobacco to excess. In November, 1907, while in the shop pouring off molten metal, the patient had suddenly a peculiar sensation as if his eyes were being forced out of his head. This was accompanied by dizziness. These sensations persisted, and were associated with roaring in the ears, and a feeling of great pressure within the skull. Vision was seriously impaired from the first. On rising suddenly or tilting the head back, he would become totally blind. The sight in the right eye steadily declined, and failed entirely in July of this year. Vision in the left is seriously impaired, and transient amaurosis follows sudden movement of the head or pressure on the front of the neck. Soon after the head symptoms in November, 1907, he began to suffer from pain in the thorax, chiefly to the right of the upper sternum, and underneath the right scapula. The pain was most often dull and aching, but at times sharp and severe. After some weeks it extended across the upper chest, and frequently radiated upward to the jaws and into the back of the neck and occiput. There has been from the first a feeling of great pressure through the frontal region of the skull and back of the eyes with aching in the jaws and teeth. The head sensations are always better when he is lying down, and the thorax pain has been relieved by treatment in hospital.

Attempts to walk had soon to be abandoned, as he became faint, dizzy, staggered, began to twitch, and frequently fell. In March, this year, he suddenly became hoarse, and had some dysphagia. The hoarseness has persisted, and he occasionally still has difficulty in swallowing when the head is thrown back. In September he began to have a harsh, brassy cough, but this only lasted a month.

In October, through the kindness of Dr. Shiels, he came under my observation at the University Hospital. At first it seemed probable that there were separate lesions in head and thorax, but this view has been abandoned. No cranial nerves, but the optic are involved. The following account of the peculiar phenomena observed in the eye grounds is from notes of Dr. Nagel:

The right eye shows optic atrophy with rather indistinct outline, but the appearance of the vessels does not point to a distinct neuritis preceding. There are degenerative retinal changes close to the disc toward the macula and upwards, and since analogous, though more recent changes in the left eye are also confined near the posterior pole, the process in the right eye may be perhaps looked upon as a secondary ascending atrophy of the nerve.

In the main branch of the inferior temporal vein in the right eye, a slow interrupted stream is observable, the blood column being divided into segments. A few days later many veins showed the same broken corpuscular columns moving forward in a slow and jerky way. After a month in hospital, no further interruption of the blood column was observed, though the veins presented frequently a granular appearance. There was occasionally decided pulsation in the veins. Both arteries and veins have become smaller, and the atrophy of both discs has distinctly progressed.

At present there is a little vision remaining in the left eye. If the patient sits up suddenly or if he tilts the head suddenly backward, or if pressure is made over the carotids, he immediately becomes blind for a few moments. If pressure be made over one carotid, he becomes dizzy but not blind. If both carotids be compressed while the patient is sitting, aften ten to thirty seconds respiration becomes deep, slow and noisy: his cyanosis gives way to pallor, respiration ceases, and twitching of the face and extremities begins. Unconsciousness supervenes, he falls backward, and remains senseless for one-half to a full minute, awakening with a dazed, frightened look. These attacks are undoubtedly due to cerebral anemia, and it seems fair to ascribe the disturbances of vision and the fundus phenomena to the same cause.

No pulsation has ever been felt in the cartoids, subclavian or radials. On entrance a faint pulsation was felt in the ulnars and brachials. Pulsation in the abdominal aorta, femorals and foot arteries is normal. The blood pressure measured in the right leg was 220 systolic, 160 diastolic on entrance, but has fallen gradually to 150 and 125. The left vocal cord is paralyzed. The blood and urine examinations are negative.

The duration of the process and the vascular phenomena speak for aneurism rather than mediastinal tumor. On entrance there was ulceration of the nasal septum and of the lower turbinate in the right nostril, and perforation of the septum has since occurred. The ulceration has healed under specific treatment, and must be regarded as a stigma of lues, despite the negative history.

A CASE OF POISONING BY SUBNITRATE OF BISMUTH.*

By GEORGE B. SOMERS, M. D., San Francisco.

Subnitrate of bismuth is considered so safe and harmless a remedy, that one hesitates to cast any reflection on its fair reputation. I believe, however, that an accident which recently came under my observation will show that the drug may not be used with absolute impunity and that toxic symptoms may follow its careless administration.

Mrs. C., age 26, married two years, never pregnant, complains of pain in the pit of the stomach, nausea and general malaise. Has had measles and mumps but no other severe sickness; her present weight is less than one hundred pounds, she is poorly developed, emaciated, pale. Sleeps poorly, poor appetite and habitually constipated.

F. H. Mother died of malaria; father alive and well; one brother alive and well. One brother died of tuberculosis, one sister of dropsy, two sisters died in infancy.

P. I. About four months ago she was taken during the night, with severe pain in the right lower chest, in the morning she felt better but a day or so later the pain returned this time situated in the epigastrium. The pain recurred at intervals during several weeks, her appetite became poor; she vomited considerably, the vomitus consisting mostly of greenish fluid. The nature of this sickness was not learned. During this time she was treated for the pain with hypodermics of morphin, which were given two or three times a day over a period of eleven weeks. She took no morphin herself. All that she received was given to her by her attendant.

At this time her physician asked me to see her on the supposition that she was suffering from some pelvic disease. An examination was negative as regards discovering any definite abdominal or pelvic trouble, but the addiction to morphin was so evident that I advised her immediate removal to the hospital with the idea of first overcoming the craving before attempting any diagnosis of her abdominal trouble. She was placed on a course of treatment for morphin habit suggested by Lambert in the Journal of the American Medical Association, September 25th, 1909.

This treatment was carried out for four days and was successful in overcoming the desire for the drug. She was then put on tonics and a liberal diet and by the end of a week from the beginning of the treatment she was very much improved in every way. From October 3rd to October 13th she seemed to be doing well except for some looseness of the bowels which was considered an after symptom of the morphin habit. She had from two to four watery movements a day and it was noticed that the number of passages in 24 hours gradually increased. October 12th she had five movements, October 13th six, October 14th she was ordered 20 grains of subnitrate of bismuth daily, given in 5 grain doses. This was continued three days. As the symptoms did not abate she was ordered 40 grains daily, in 10-grain powders given 4 hours apart. After this order the patient was left in charge of an interne and I did not see her again until the morning of the fifth day. On making inquiry about her condition I found that the bismuth had been given steadily during my absence, the total amount (including the first course of 20 grains daily) amounted to 240 grains spread over an interval of seven days.

The patient was in much distress, she was able to swallow only with great difficulty, her gums were swollen, sore and presented a dark bluish discoloration. Under the tongue were several ulcers. The tongue itself was red and swollen and presented several sores along its edges, a number of aphthae were scattered over the soft palate, pharynx and inner surface of the cheeks and the general appearance of the mucous membrane of the mouth was dusky. The diarrhoea instead of diminishing seemed worse. She refused nourishment and altogether was quite sick.

The bismuth was at once stopped, a dose of castor oil given and a mouth wash prescribed. She immediately began to improve and at present, about three weeks after the last dose of bismuth, shows little or no evidence of the mouth symptoms. No positive diagnosis has yet been made as to her abdominal trouble but it may be said that a Moro given a few days ago gave a positive reaction.

The question arises at once as to whether we can justly attribute the mouth symptoms in this case to the bismuth. I can only reply that the patient received a great deal more bismuth than I am in the habit of prescribing or than I intended to prescribe in this particular case, and secondly, the symptoms that she presented correspond definitely to the symptoms observed by others in cases of bismuth poisoning. It is quite possible that the patient either presents an idiosyncrasy to bismuth or that her physical condition rendered her more susceptible. I have not seen any cases of bismuth poisoning reported where the drug has been given by mouth. A number of cases, however, have been reported where bismuth has been applied to raw surfaces. In 1882 Kocher called attention to the danger of poisoning where bismuth is applied to wounds and in the October number of the Illinois Medical Journal five cases of poisoning following the injection of bismuth paste in tuberculous sinuses are reported, three of them with fatal results. The symptoms in general were characterized by ulcerative stomatitis, black pigmentation of the gums and mucous membranes of the mouth associated with enteritis and nephritis.

Discussion.

Dr. Jule B. Frankenheimer: Though I have not seen any cases of bismuth subnitrate poisoning I have noticed in the recent literature a number of cases of acute poisoning reported. The symptoms were those of a severe collapse with diarrhoea. The patients were all given large quantities of the drug for X-ray purposes. The symptoms were ascribed to a splitting up of the nitrates into nitrites.

Dr. Sol Hyman: It would be interesting to know just what kind of subnitrates of bismuth Dr. Somers employed; because Baer working with this drug in surgical tuberculosis in two different hospitals found that in one hospital his results from this drug were good and in another hospital his results from use of the same drug were uniformly poor. He found that in the hospital where the results had been poor that the subnitrate of bismuth contained lead as an impurity. As the cases reported bear a striking resemblance to acute lead poisoning it would be worth while to know whether a pure form of bismuth subnitrate has been used.

* Read before the Cooper College Science Club.